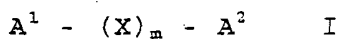


## Claims

1. Peptide-polymethine-dye conjugates of general formula  
(I)



in which

X stands for an  $\alpha$ -,  $\beta$ - or  $\gamma$ -amino acid with D- or L-configuration, and

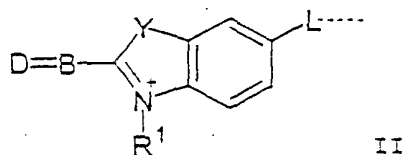
m stands for a number from 5 to 30,  
whereby the resulting amino acid sequence  $(X)_m$  can be cyclized in a straight-chain nature or via a disulfide bridge between two cysteines or homocysteines or amidically between the N- and C-terminus, and m stands for the amino acid sequence of the vaso-active intestinal peptide (VIP), the somatostatin or the neurotensin, or for fragments, partial sequences, derivatives or analogs of the VIP, somatostatin or neurotensin,

$A^1$  stands for a hydrogen atom, an acetyl radical or an alkyl radical with up to 10 C-atoms, which optionally can be substituted with 1 to 3 carboxy groups and/or 1 to 6 hydroxy groups, or a poly(oxyethylene) radical with 2 to 30  $-\text{CH}_2\text{CH}_2\text{O}$  units, or a dye molecule from the

class of the polymethine dyes, which has at least one absorption maximum in the range of 380 to 1200 nm, A<sup>2</sup> stands for a hydroxy group, an amino group or a dye molecule from the class of polymethine dyes, which has at least one absorption maximum in the range of 380 to 1200 nm, under the condition that at least one of radicals A<sup>1</sup> or A<sup>2</sup> represents a dye molecule from the class of polymethine dyes, which has at least one absorption maximum in the range of 380 to 1200 nm, whereby for the case that A<sup>1</sup> and/or A<sup>2</sup> represents a dye molecule from the class of polymethine dyes, which has at least one absorption maximum in the range of 380 to 1200 nm, A<sup>1</sup> is linked to the N-terminal amino group, and A<sup>2</sup> is linked to an amino group of the amino acid lysine or to a hydroxy group of the amino acid serine in any position within the amino acid sequence (X)<sub>m</sub>, and their physiologically compatible salts.

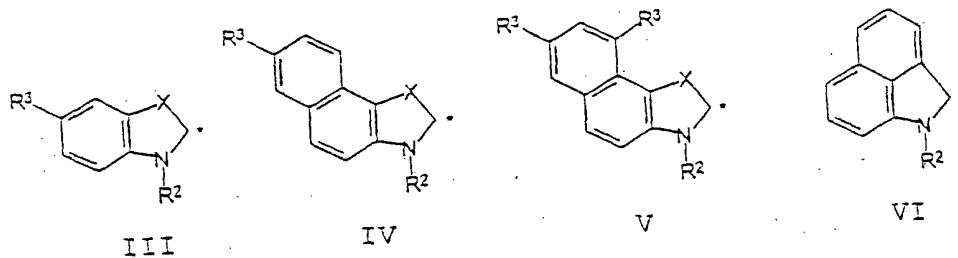
2. Compounds according to claim 1, characterized in that dye molecule A<sup>1</sup> and/or A<sup>2</sup> stands for a cyanine, squarilium, croconium, merocyanine or oxonol dye.

3. Compounds according to claim 1 or 2, wherein dye molecule A<sup>1</sup> and/or A<sup>2</sup> stands for a cyanine or squarilium dye of general formulas II

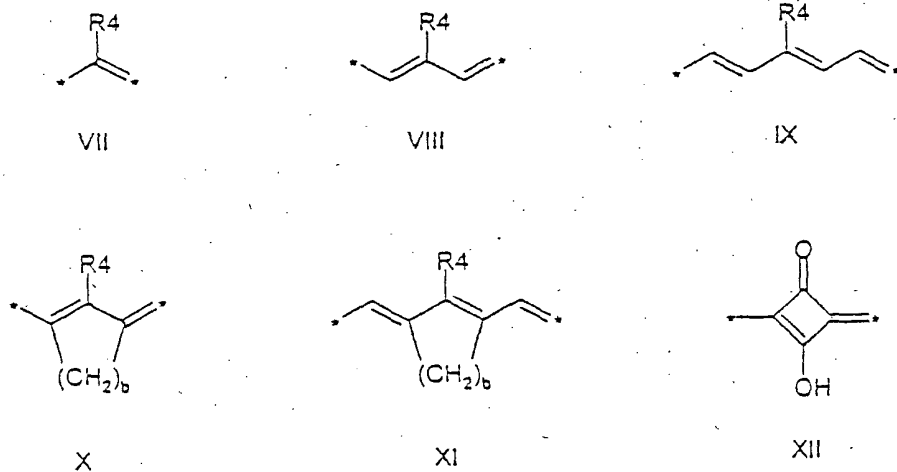


in which

D stands for a fragment that corresponds to general formulas III to VI, whereby the position that is identified with a star means the linkage with B



B stands for a fragment that corresponds to general formulas VII to XII



$R^1$  and  $R^2$  stand for  $E^1$ ,  $R^3$  stands for a fluorine, chlorine, or  $-OSO_3E^1$ ,  $-SO_3E^1$ ,  $-SO_2NHE^1$ ,  $-E^1$ ,

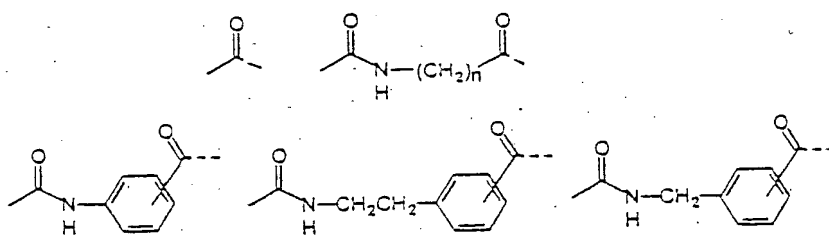
whereby  $E^1$  and  $E^2$ , independently of one another, stand for a hydrogen atom, a  $C_1$ - $C_4$  sulfoalkyl chain, a saturated or unsaturated, branched or straight-chain  $C_1$ - $C_{50}$  alkyl chain, whereby the chain or parts of this chain optionally can form one or more aromatic or saturated cyclic  $C_5$ - $C_6$  units or bicyclic  $C_{10}$  units, and whereby the  $C_1$ - $C_{50}$  alkyl chain is interrupted by 0 to 15 oxygen atoms and/or by 0 to 3 carbonyl groups and/or is substituted with 0 to 5 hydroxy groups,

$R^4$  stands for a hydrogen atom, a fluorine, chlorine, bromine, iodine atom or a branched or straight-chain  $C_1$ - $C_{10}$  alkyl chain,

b means a number 2 or 3,

X and Y, independently of one another, mean O, S, Se,  $-\text{CH}=\text{CH}-$  or  $\text{C}(\text{CH}_3)_2$ ,

L stands for a group that corresponds to the formulas below

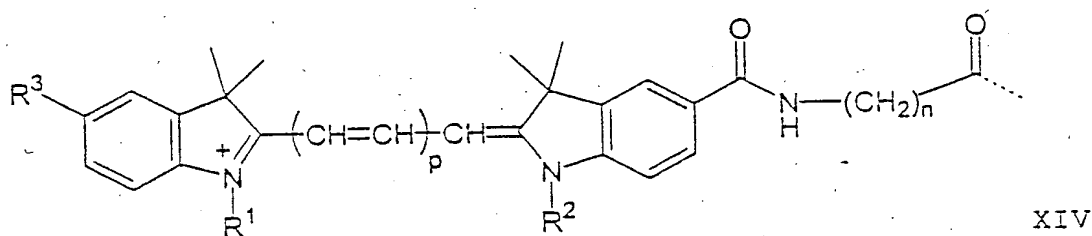
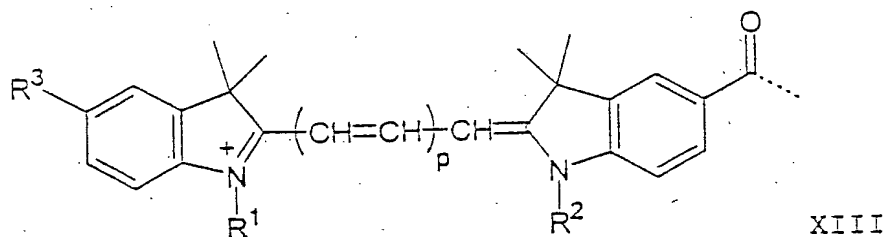


in which

n means a number from 1 to 10.

4. Compounds according to claims 1 to 3, wherein dye molecule A<sup>1</sup> and/or A<sup>2</sup> stands for an indocarbocyanine dye, an indodicarbocyanine dye or an indotricarbocyanine dye.

5. Compounds according to claim 4, wherein dye molecule A<sup>1</sup> and/or A<sup>2</sup> stands for an indocarbocyanine dye, an indodicarbocyanine dye or an indotricarbocyanine dye of general formula XIII or XIV



in which

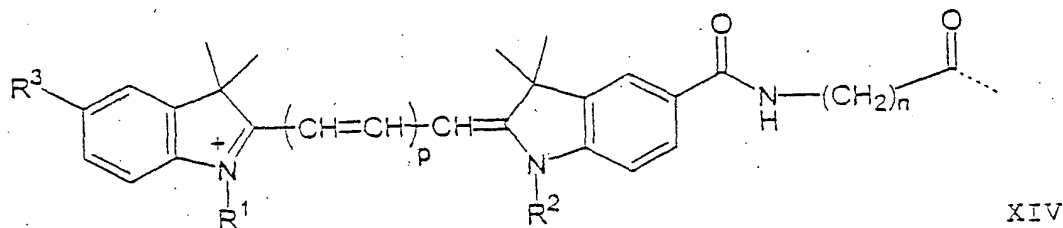
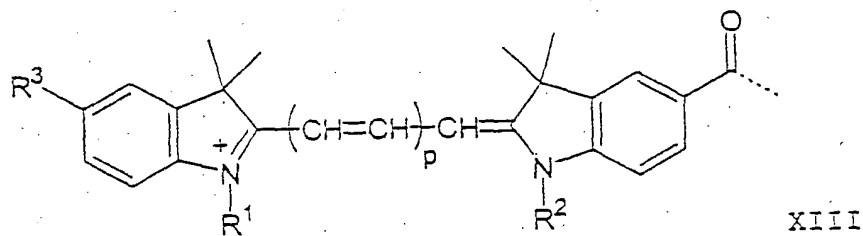
p stands for 1, 2 or 3,

n stands for a number 1, 2, 3, 4 or 10,

R<sup>1</sup> and R<sup>2</sup>, independently of one another, stand for a 4-

$R^3$  stands for hydrogen, a chlorine, bromine, iodine atom or a nitro group or for a radical  $-\text{COOE}^1$ ,  $-\text{CONE}^1\text{E}^2$ ,  $-\text{NHCOE}^1$ ,  $-\text{NHCONHE}^1$ ,  $-\text{NE}^1\text{E}^2$ ,  $-\text{OE}^1$ ,  $-\text{OSO}_3\text{E}^1$ ,  $-\text{SO}_3\text{E}^1$ ,  $-\text{SO}_2\text{NHE}^1$ , whereby  $\text{E}^1$  and  $\text{E}^2$ , independently of one another, stand for a hydrogen atom or for a methyl or ethyl radical or a  $\text{C}_3$ - $\text{C}_6$  alkyl radical, which is interrupted by 0 to 2 oxygen atoms and/or by 0 to 1 carbonyl groups and/or is substituted with 0 to 5 hydroxy groups, or  $\text{E}^1$  and  $\text{E}^2$  stand for a poly(oxyethylene)glycol radical with 2 to 30  $-\text{CH}_2\text{CH}_2\text{O}$  units.

6. Compounds according to claim 4, wherein dye molecule  $\text{A}^1$  and/or  $\text{A}^2$  stands for an indocarbocyanine dye, an indodicarbocyanine dye or an indotricarbocyanine dye of general formula XIII or XIV



in which

p stands for 1, 2 or 3,

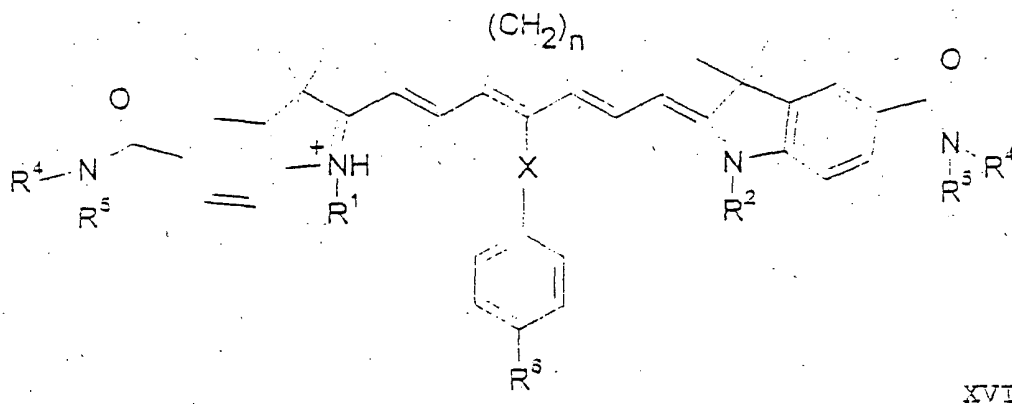
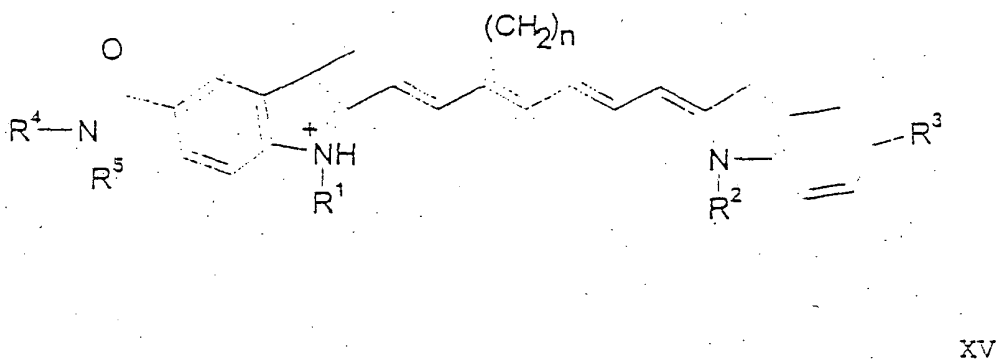
n stands for 1, 2 or 4,

$R^1$  and  $R^2$ , independently of one another, stand for a 4-

$R^3$  stands for hydrogen or for a radical  $-COOE^1$  or  $-CONHE^1$ ,

whereby  $E^1$  means a hydrogen atom or a methyl or ethyl hydroxy groups.

7. Compounds according to claim 4, wherein dye molecule  $A^1$  and/or  $A^2$  stands for an indotricarbocyanine dye of general formula XV or XVI:



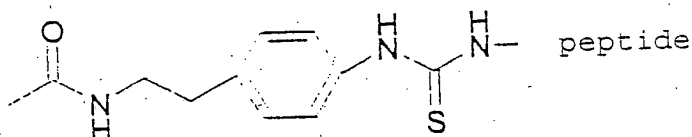
in which

$n$  stands for 2 or 3,

$R^1$  and  $R^2$ , independently of one another, represent a 4-

$R^3$  stands for a radical  $-\text{CONH-peptide}$ ,  $-\text{CONH}-(\text{CH}_2)_m-$   
 $\text{CONH peptide}$ ,  $-\text{CONH}-(\text{CH}_2)_n-\text{NH-CS-NH-peptide}$  or  
 $-\text{CONH}-(\text{CH}_2)_n-\text{NHCO-CH}_2\text{-peptide}$  with  $m = 1$  to 10 and  
 $n = 2$  or 3,

or  $R^3$  represents a group below:



$R^4$  and  $R^5$ , independently of one another, stand for a

$R^6$  stands for one of the following groups:

$-(\text{CH}_2)_m-\text{CONH-peptide}$  with  $m = 0$  to 2,

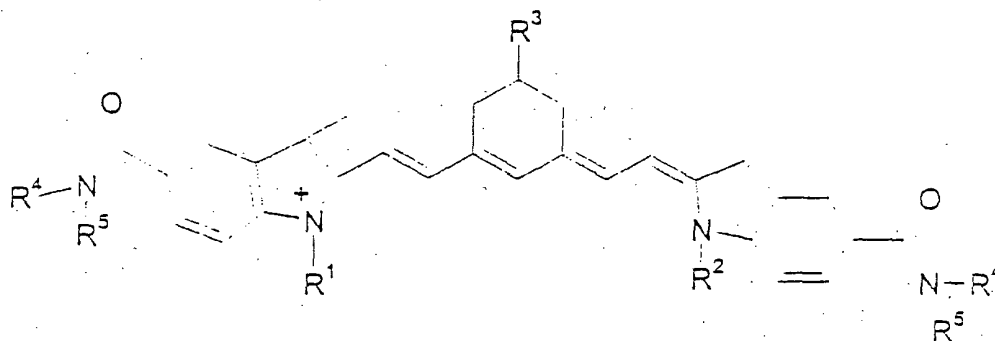
$-(\text{CH}_2)_m-\text{NH-CS-NH-peptide}$  with  $m = 0$  to 2,



and X stands for an oxygen atom or a sulfur atom.

8. Compounds according to claim 4, wherein dye molecule A<sup>1</sup> and/or A<sup>2</sup> stands for an indotricarbocyanine dye of general

formula XVII:



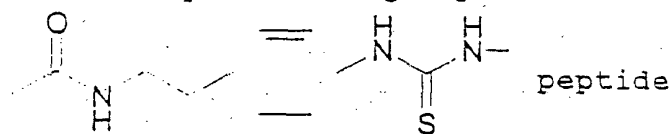
XVIII

in which

$R^1$  and  $R^2$ , independently of one another, stand for a 4-

$R^3$  stands for a radical -CONH-peptide, -NH-CS-NH-peptide or -CONH-(CH<sub>2</sub>)<sub>n</sub>-NHCO-CH<sub>2</sub>-peptide with  $n = 2$  or 3,

or  $R^3$  represents a group below:



and  $R^4$  and  $R^5$ , independently of one another, stand for a hydrogen atom, a methyl radical or a hydroxylated alkyl radical.

9. Compounds according to claim 7 or 8, wherein the hydroxylated alkyl radicals stand for 2-hydroxyethyl, 3-hydroxypropyl, 2,3-dihydroxypropyl, 1,3-dihydroxy-2-propyl,

2,3,4-trihydroxybutyl, 1,3,4-trihydroxy-2-butyl, 2,3,4,5,6-pentahydroxyhexyl.

10. Compounds according to claim 1, wherein  $(X)_m$  stands for the amino acid sequence of the native vaso-active intestinal peptide corresponding to  
HSDAVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 196)  
or for fragments, partial sequences, derivatives or analogs of the vaso-active, intestinal peptide that consists of 5 to 30 amino acids.

11. Compounds according to claim 1, wherein  $(X)_m$  stands for the amino acid sequence of the somatostatin that corresponds to  
AGCKNFFWKTFSTSC (SEQ ID NO: 9) or for fragments, partial sequences, derivatives or analogs of the somatostatin that consists of 5 to 20 amino acids.

12. Compounds according to claim 1, wherein  $(X)_m$  stands for the amino acid sequence of the neurotensin that corresponds to  
pyroglutamic acid-LYENKPRRPYIL (SEQ ID NO: 10)  
or for fragments, partial sequences, derivatives or analogs of the neurotensin that consists of 5 to 20 amino acids.

13. Compounds according to claim 10, wherein as fragments, partial sequences, derivatives or analogs of the vaso-active intestinal peptide, the following amino acid sequences are

selected:

RLRKQMAVKKYLSILN	RLRKQMAVKKYLSIL	RLRKQMAVKKYLSI
(SEQ ID NO: 11)	(SEQ ID NO: 18)	(SEQ ID NO: 25)
LRKQMAVKKYLSILN	LRKQMAVKKYLSIL	LRKQMAVKKYLSI
(SEQ ID NO: 12)	(SEQ ID NO: 19)	(SEQ ID NO: 26)
RKQMAVKKYLSILN	RKQMAVKKYLSIL	RKQMAVKKYLSI
(SEQ ID NO: 13)	(SEQ ID NO: 20)	(SEQ ID NO: 27)
KQMAVKKYLSILN	KQMAVKKYLSIL	KQMAVKKYLSI
(SEQ ID NO: 14)	(SEQ ID NO: 21)	(SEQ ID NO: 28)
QMAVKKYLSILN	QMAVKKYLSIL	QMAVKKYLSI
(SEQ ID NO: 15)	(SEQ ID NO: 22)	(SEQ ID NO: 29)
MAVKKYLSILN	MAVKKYLSIL	MAVKKYLSI
(SEQ ID NO: 16)	(SEQ ID NO: 23)	(SEQ ID NO: 30)
AVKKYLSILN	AVKKYLSIL	AVKKYLSI
(SEQ ID NO: 17)	(SEQ ID NO: 24)	(SEQ ID NO: 31)

RLRKQMAVKKYLS	RLRKQMAVKKYLN	RLRKQMAVKKYL
(SEQ ID NO: 32)	(SEQ ID NO: 39)	(SEQ ID NO: 46)
LRKQMAVKKYLS	LRKQMAVKKYLN	LRKQMAVKKYL
(SEQ ID NO: 33)	(SEQ ID NO: 40)	(SEQ ID NO: 47)
RKQMAVKKYLS	RKQMAVKKYLN	RKQMAVKKYL
(SEQ ID NO: 34)	(SEQ ID NO: 41)	(SEQ ID NO: 48)
KQMAVKKYLS	KQMAVKKYLN	KQMAVKKYL
(SEQ ID NO: 35)	(SEQ ID NO: 42)	(SEQ ID NO: 49)
QMAVKKYLS	QMAVKKYLN	QMAVKKYL
(SEQ ID NO: 36)	(SEQ ID NO: 43)	(SEQ ID NO: 50)
MAVKKYLS	MAVKKYLN	MAVKKYL
(SEQ ID NO: 37)	(SEQ ID NO: 44)	(SEQ ID NO: 51)
AVKKYLS	AVKKYLN	AVKKYL
(SEQ ID NO: 38)	(SEQ ID NO: 45)	(SEQ ID NO: 52)

14. Compounds according to claim 10, wherein as analogs of the VIP, peptides from the following group of sequences are selected:

FSDAVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 53)  
 ISDAVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 54)  
 LSDAVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 55)  
 HFDVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 56)  
 HHDVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 57)  
 HIDVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 58)

HLDVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 59)  
HMDVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 60)  
HQDVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 61)  
HTDVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 62)  
HVDVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 63)  
HWDVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 64)  
HYDVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 65)  
HSAVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 66)  
HSEVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 67)  
HSFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 68)  
HSHVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 69)  
HSIVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 70)  
HSLVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 71)  
HSMVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 72)  
HSAVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 73)  
HSDVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 74)  
HSDGVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 75)  
HSDMVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 76)  
HSDQVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 77)  
HSDSVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 78)  
HSDWVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 79)  
HSDYVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 80)  
HSDAFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 81)  
HSDAIFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 82)  
HSDALFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 83)  
HSDAMFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 84)  
HSDATFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 85)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 86)  
HSDAYFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 87)  
HSDAVKFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 88)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 89)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 90)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 91)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 92)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 93)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 94)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 95)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 96)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 97)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 98)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 99)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 100)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 101)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 102)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 103)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 104)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 105)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 106)  
HSDAVFVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 107)

HSDAVFTDNYTRLRKQFAVKKYLSILN (SEQ ID NO: 108)  
HSDAVFTDNYTRLRKQIAVKKYLSILN (SEQ ID NO: 109)  
HSDAVFTDNYTRLRKQKAVKKYLSILN (SEQ ID NO: 110)  
HSDAVFTDNYTRLRKQLAVKKYLSILN (SEQ ID NO: 111)  
HSDAVFTDNYTRLRKQQAVKKYLSILN (SEQ ID NO: 112)  
HSDAVFTDNYTRLRKQRAVKKYLSILN (SEQ ID NO: 113)  
HSDAVFTDNYTRLRKQWAVKKYLSILN (SEQ ID NO: 114)  
HSDAVFTDNYTRLRKQMFVKKYLSILN (SEQ ID NO: 115)  
HSDAVFTDNYTRLRKQMIVKKYLSILN (SEQ ID NO: 116)  
HSDAVFTDNYTRLRKQMKVKKYLSILN (SEQ ID NO: 117)  
HSDAVFTDNYTRLRKQMLVKKYLSILN (SEQ ID NO: 118)  
HSDAVFTDNYTRLRKQMMVKKYLSILN (SEQ ID NO: 119)  
HSDAVFTDNYTRLRKQMQVKKYLSILN (SEQ ID NO: 120)  
HSDAVFTDNYTRLRKQMRVKKYLSILN (SEQ ID NO: 121)  
HSDAVFTDNYTRLRKQMVVKKYLSILN (SEQ ID NO: 122)  
HSDAVFTDNYTRLRKQMWVKKYLSILN (SEQ ID NO: 123)  
HSDAVFTDNYTRLRKQMYVKKYLSILN (SEQ ID NO: 124)  
HSDAVFTDNYTRLRKQMAAKKYLSILN (SEQ ID NO: 125)  
HSDAVFTDNYTRLRKQMAIKKYLSILN (SEQ ID NO: 126)  
HSDAVFTDNYTRLRKQMALKKYLSILN (SEQ ID NO: 127)  
HSDAVFTDNYTRLRKQMAVRKYLSILN (SEQ ID NO: 128)  
HSDAVFTDNYTRLRKQMAVKRYLSILN (SEQ ID NO: 129)  
HSDAVFTDNYTRLRKQMAVKWYLSILN (SEQ ID NO: 130)  
HSDAVFTDNYTRLRKQMAVKKFLNSILN (SEQ ID NO: 131)  
HSDAVFTDNYTRLRKQMAVKKWLSILN (SEQ ID NO: 132)  
HSDAVFTDNYTRLRKQMAVKKYLASILN (SEQ ID NO: 133)  
HSDAVFTDNYTRLRKQMAVKKYLFSILN (SEQ ID NO: 134)  
HSDAVFTDNYTRLRKQMAVKKYLISILN (SEQ ID NO: 135)  
HSDAVFTDNYTRLRKQMAVKKYLSILN (SEQ ID NO: 136)  
HSDAVFTDNYTRLRKQMAVKKYLSSILN (SEQ ID NO: 137)  
HSDAVFTDNYTRLRKQMAVKKYLVSILN (SEQ ID NO: 138)  
HSDAVFTDNYTRLRKQMAVKKYLWSILN (SEQ ID NO: 139)  
HSDAVFTDNYTRLRKQMAVKKYLNILN (SEQ ID NO: 140)  
HSDAVFTDNYTRLRKQMAVKKYLNRIILN (SEQ ID NO: 141)  
HSDAVFTDNYTRLRKQMAVKKYLNWILN (SEQ ID NO: 142)  
HSDAVFTDNYTRLRKQMAVKKYLNIIILN (SEQ ID NO: 143)  
HSDAVFTDNYTRLRKQMAVKKYLNLSILN (SEQ ID NO: 144)  
HSDAVFTDNYTRLRKQMAVKKYLNSSLN (SEQ ID NO: 145)  
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HSDAVFTDNYTRLRKQMAVKKYLNSSILN (SEQ ID NO: 150)  
HSDAVFTDNYTRLRKQMAVKKYLNSSILN (SEQ ID NO: 151)

15. Compounds according to claim 10, wherein as an analog of the VIP, a compound according to the following formula is selected:

HSDAVFTX<sup>1</sup>X<sup>2</sup>Y X<sup>3</sup>RLRKQMAVK KYLNSILN (SEQ ID NO: 152),

in which X<sup>1</sup>, X<sup>2</sup> and X<sup>3</sup> can represent any amino acid.

16. Compounds according to at least one of the preceding claims, wherein 2 to m amino acids, independently of one another, can be exchanged for their respective D-amino acid or for other L- or D-amino acids, whereby m has the above-indicated meaning.

17. Compounds according to at least one of the preceding claims, wherein at least one of amino acids (X)<sub>m</sub>, independently of one another, can be exchanged for other amino acids or amino acid derivatives that are not natural.

18. Compounds according to claim 17, wherein as amino acids or amino acid derivatives that are not natural, one of the following compounds is selected: naphthalanine, cyclohexylalanine, norleucine, norvaline,  $\alpha$ -aminoadipic acid,  $\alpha$ -aminobutyric acid,  $\beta$ -alanine,  $\beta$ -cyclohexylalanine, ornithine, sarcosine or  $\delta$ -hydroxylysine.

19. Compounds according to at least one of the preceding claims, wherein as an analog of the VIP, a compound is selected according to the following formula:

$X^1$ SDAVX $X^2$ TDNX $X^3$  TRLRKQMAVK KX $X^4$ LNSILN (SEQ ID NO: 153),

in which  $X^1$ ,  $X^2$ ,  $X^3$  and  $X^4$  represent amino acids or amino acid derivatives that are not natural.

20. Compounds according to claim 19, wherein the amino acids or amino acid derivatives that are not natural are selected from the following groups: naphthalanine, cyclohexylalanine, norleucine, norvaline,  $\alpha$ -aminoadipic acid,  $\alpha$ -aminobutyric acid,  $\beta$ -alanine,  $\beta$ -cyclohexylalanine, ornithine, sarcosine or  $\delta$ -hydroxylysine.

21. Compounds according to at least one of the preceding claims, wherein all amino acids (X)<sub>m</sub> are exchanged for their respective D-amino acid.

22. Compounds according to at least one of the preceding claims, wherein retrosynthetic amino acid sequences are selected as fragments, partial sequences, derivatives or analogs of the vaso-active intestinal peptide.

23. Compounds according to at least one of the preceding claims, wherein retrosynthetic amino acid sequences, in which 2 to m amino acids are exchanged for the respective D-amino acid, are selected as fragments, partial sequences, derivatives or



analogs of the vaso-active, intestinal peptide, whereby m has the above-indicated meaning.

24. Compounds according to claim 10, wherein the following amino acid sequences are selected as fragments, partial sequences, derivatives or analogs of the vaso-active, intestinal peptide:

rlrkq mavkkylnsiln	rlrkq mavkkylnsil	rlrkq mavkkylnsi
(SEQ ID NO: 11)	(SEQ ID NO: 18)	(SEQ ID NO: 25)
lrkq mavkkylnsiln	lrkq mavkkylnsil	lrkq mavkkylnsi
(SEQ ID NO: 12)	(SEQ ID NO: 19)	(SEQ ID NO: 26)
rkq mavkkylnsiln	rkq mavkkylnsil	rkq mavkkylnsi
(SEQ ID NO: 13)	(SEQ ID NO: 20)	(SEQ ID NO: 27)
kq mavkkylnsiln	kq mavkkylnsil	kq mavkkylnsi
(SEQ ID NO: 14)	(SEQ ID NO: 21)	(SEQ ID NO: 28)
q mavkkylnsiln	q mavkkylnsil	q mavkkylnsi
(SEQ ID NO: 15)	(SEQ ID NO: 22)	(SEQ ID NO: 29)
mavkkylnsiln	mavkkylnsil	mavkkylnsi
(SEQ ID NO: 16)	(SEQ ID NO: 23)	(SEQ ID NO: 30)
avkkylnsiln	avkkylnsil	avkkylnsi
(SEQ ID NO: 17)	(SEQ ID NO: 24)	(SEQ ID NO: 31)

RLRKQMAVKKYLNSILN	RLRKQMAVKKYLNSIL	RLRKQMAVKKYLNSI
(SEQ ID NO: 11)	(SEQ ID NO: 18)	(SEQ ID NO: 25)
LRKQMAVKKYLNSILN	LRKQMAVKKYLNSIL	LRKQMAVKKYLNSI
(SEQ ID NO: 12)	(SEQ ID NO: 19)	(SEQ ID NO: 26)
RKQMAVKKYLNSILN	RKQMAVKKYLNSIL	RKQMAVKKYLNSI
(SEQ ID NO: 13)	(SEQ ID NO: 20)	(SEQ ID NO: 27)
KQMAVKKYLNSILN	KQMAVKKYLNSIL	KQMAVKKYLNSI
(SEQ ID NO: 14)	(SEQ ID NO: 21)	(SEQ ID NO: 28)
QMAVKKYLNSILN	QMAVKKYLNSIL	QMAVKKYLNSI
(SEQ ID NO: 15)	(SEQ ID NO: 22)	(SEQ ID NO: 29)
MAVKKYLNSILN	MAVKKYLNSIL	MAVKKYLNSI
(SEQ ID NO: 16)	(SEQ ID NO: 23)	(SEQ ID NO: 30)
AVKKYLNSILN	AVKKYLNSIL	AVKKYLNSI
(SEQ ID NO: 17)	(SEQ ID NO: 24)	(SEQ ID NO: 31)

25. Compounds according to claim 11, wherein the following amino acid sequences are selected as fragments, partial sequences, derivatives or analogs of the somatostatin:

AGCKNFFWKTFTSC	AGcKNFFwKTFTSC
(SEQ ID NO: 9)	(SEQ ID NO: 9)
AGCKNFFWKTFTSc	AGcKNFFwKTFTSc
(SEQ ID NO: 9)	(SEQ ID NO: 9)
CKNFFWKTFTSC	cKNFFwKTFTSC
(SEQ ID NO: 154)	(SEQ ID NO: 154)
FFYWKVFT	
(SEQ ID NO: 155)	
fcFwKVCT	fcFwKVCT (SEQ ID NO:
156) (SEQ ID NO: 156)	
fcYwKVCT	fcYwKVCT
(SEQ ID NO: 157)	(SEQ ID NO: 157)
fcFwKTCT	fcFwKTCT
(SEQ ID NO: 158)	(SEQ ID NO: 158)
fcYwKTCT	fcYwKTCT
(SEQ ID NO: 159)	(SEQ ID NO: 159)
D-NaI-CYwKVC	D-NaI-cYwKVC (SEQ ID NO:
195) (SEQ ID NO: 195)	
fcYwK-Abu-C-NaI	fcywK-Abu-C-NaI
(SEQ ID NO: 160)	(SEQ ID NO: 160)

26. Compounds according to claim 12, wherein the following amino acid sequences are selected as fragments, partial sequences, derivatives or analogs of the neurotensin:

	pGlu-LYQNKPRRPFIL	pGlu-LYENKPRRPYI
	(SEQ ID NO: 165)	(SEQ ID NO: 171)
pGlu-LYENKPRRPYIL	pGlu-LYQNKPRRPfIL	pGlu-LYENKPRRPY
(SEQ ID NO: 10)	(SEQ ID NO: 166)	(SEQ ID NO: 172)
pGlu-LYQNKPRRPYIL	pGlu-LYENKPRRPWIL	pGlu-LYENKPRRP
(SEQ ID NO: 161)	(SEQ ID NO: 167)	(SEQ ID NO: 173)
pGlu-LYQNKPRRPYIL	pGlu-LYENKPRRPwIL	pGlu-LYENKPRR

(SEQ ID NO: 162) (SEQ ID NO: 168) (SEQ ID NO: 174)  
 pGlu-LYENKPRRRPFIL pGlu-LYQNKPRRRPWIL pGlu-LYENKPR (SEQ ID  
 NO: 163) (SEQ ID NO: 169) (SEQ ID NO: 175)  
 pGlu-LYENKPRRRPFIL pGlu-LYQNKPRRRPWIL pGlu-LYENKP  
 (SEQ ID NO: 164) (SEQ ID NO: 170) (SEQ ID NO: 176)

NKPRRRPYIL NKPRRRPyIL NKPRRRPfIL NKPRRRPWIL  
 (SEQ ID NO: 177) (SEQ ID NO: 177) (SEQ ID NO: 181) (SEQ ID NO: 185)  
 KPRRRPYIL KPRRRPyIL KPRRRPfIL KPRRRPWIL  
 (SEQ ID NO: 178) (SEQ ID NO: 178) (SEQ ID NO: 182) (SEQ ID NO: 186)  
 PRRRPYIL PRRRPyIL PRRRPfIL PRRRPWIL  
 (SEQ ID NO: 179) (SEQ ID NO: 179) (SEQ ID NO: 183) (SEQ ID NO: 187)  
 RRPYIL RRPyIL RRPfIL RRPWIL  
 (SEQ ID NO: 180) (SEQ ID NO: 180) (SEQ ID NO: 184) (SEQ ID NO: 188)

27. Use of the compounds according to at least one of the preceding claims for in-vivo diagnosis of tumors, other diseased tissue areas or adenomas using optical detection processes, or for in-vivo fluorescence diagnosis of tumors, tumor cells and/or inflammatory tissues using endoscopic processes in the gastrointestinal tract, esophagus, bronchial tract, bladder or cervix, or for in-vivo fluorescence diagnosis and/or absorption diagnosis of breast tumors using optical mammography (transillumination or optical tomography of the breast).

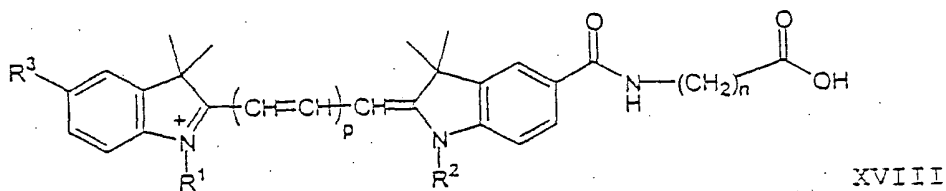
28. Process for endoscopic in-vivo fluorescence diagnosis with use of the compounds according to claim 1, wherein the compounds are administered to the patients intravenously or topically by atomization in the gastrointestinal tract, esophagus, bladder or are fed to the bronchial tubes by inhalation,

in the case of atomization, the unbonded, excess portion of the compound is removed by washing,

the endoscopic study is performed by local excitation with an excitation wavelength that is selected from the spectral range of 380 to 1200 nm and by position-dependent detection of the specific fluorescence radiation that is emitted by dye.

29. Optical diagnostic agent for in-vivo diagnosis of diseased tissue areas, wherein it contains at least one compound according to claim 1 together with the common adjuvants and/or vehicles as well as diluents.

30. Cyanine dyes of general formula XVIII,



in which

p stands for 1, 2 or 3,

n stands for 1, 2, 3, 4 or 10,

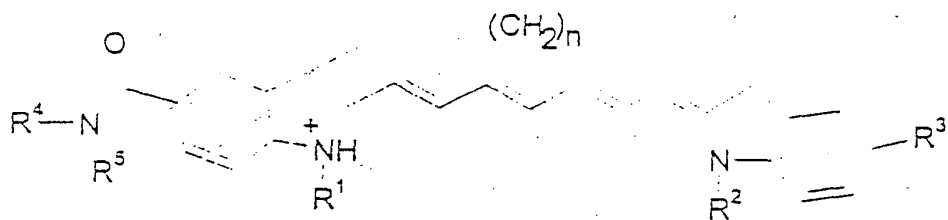
R¹ and R², independently of one another, stand for a 4-sulfobu

R³ stands for hydrogen or for a radical -COOE¹, -CONE¹E², -NHCOE¹, -NHCONHE¹, -NE¹E², -OE¹, -OSO₃E¹, -SO₃E¹, -SO₂NHE¹,

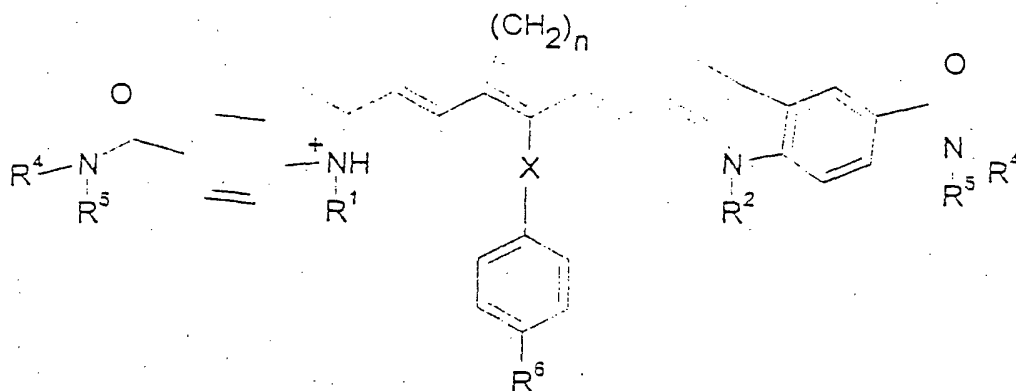
whereby E¹ and E², independently of one another, stand for a hydrogen atom or for a methyl, ethyl or a C₃-C₆

alkyl radical, which is interrupted by 0 to 2 oxygen atoms and/or by 0 to 1 carbonyl groups and/or is substituted by 0 to 5 hydroxy groups.

31. Cyanine dyes of general formula XIX or XX



XIX



XX

in which

$n$  stands for 2 or 3,

$R^1$  and  $R^2$ , independently of one another, represent a 4-sulfo

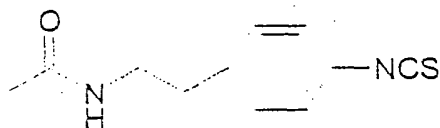
$R^3$  stands for a  $-COOH$  group or one of the following radicals:

$-CONH-(CH_2)_n-COOH$  with  $n = 2$  or  $3$ ,

$-CONH-(CH_2)_n-NCS$  with  $n = 2$  or  $3$ ,

$-CONH-(CH_2)_n-NHCO-CH_2-X^1$  with  $n = 2$  or  $3$  and  $X^1 = Cl$ ,

$Br$ ,  $I$



$R^4$  and  $R^5$ , independently of one another, stand for a hydrogen atom, a methyl radical or a hydroxylated alkyl radical, such as, e.g., 2-hydroxyethyl, 3-hydroxypropyl, 2,3-dihydroxypropyl, 1,3-dihydroxy-2-propyl, 2,3,4-trihydroxybutyl, 1,3,4-trihydroxy-2-butyl, 2,3,4,5,6-pentahydroxyhexyl,

$R^6$  stands for one of the following groups:

$-(CH_2)_m-COOH$  with  $m = 0$  to  $2$ ,

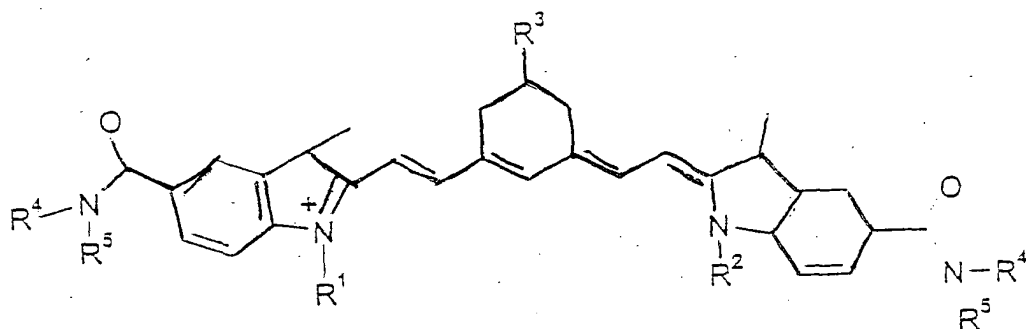
$-(CH_2)_m-NCS$  with  $m = 0$  to  $2$ ,

$-(CH_2)_m-CONH\text{-peptide}$  with  $m = 0$  to  $2$ ,

$-(CH_2)_m-NH-CS-NH\text{-peptide}$  with  $m = 0$  to  $2$ ,

and  $X$  stands for an oxygen atom or a sulfur atom.

## 32. Cyanine dyes of general formula XXI



XXI

in which

$R^1$  and  $R^2$ , independently of one another, stand for a 4-sulfobu

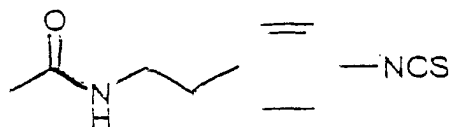
$R^3$  stands for a  $-COOH$  group or one of the following radicals:

$-CONH-(CH_2)_n-COOH$  with  $n = 2$  or  $3$ ,

$-CONH-(CH_2)_n-NCS$  with  $n = 2$  or  $3$ ,

$-CONH-(CH_2)_n-NHCO-CH_2-X^1$  with  $n = 2$  or  $3$  and  $X^1 = Cl$ ,

$Br$ ,  $I$



and  $R^4$  and  $R^5$ , independently of one another, stand for a hydrogen atom, a methyl radical or a hydroxylated alkyl radical, such as, e.g., 2-hydroxyethyl, 3-

hydroxypropyl, 2,3-dihydroxypropyl, 1,3-dihydroxy-2-propyl, 2,3,4-trihydroxybutyl, 1,3,4-trihydroxy-2-butyl, 2,3,4,5,6-pentahydroxyhexyl.

33. Analogs of the VIP, characterized by the following sequences:

His-Trp-Asp-Ala-Val-Phe-Thr-Asp-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-  
Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn  
(SEQ ID NO: 1)

His-Ser-Asp-Ala-Val-Phe-Thr-Phe-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-  
Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn  
(SEQ ID NO: 2)

His-Ser-Asp-Ala-Val-Phe-Thr-Lys-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-  
Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn  
(SEQ ID NO: 3)

His-Ser-Asp-Ala-Val-Phe-Thr-Gln-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-  
Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn  
(SEQ ID NO: 4)

His-Ser-Asp-Ala-Val-Phe-Thr-Arg-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-  
Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn  
(SEQ ID NO: 5)



His-Ser-Asp-Ala-Val-Phe-Thr-Trp-Asn-Tyr-Thr-Arg-Leu-Arg-Lys-  
Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn  
(SEQ ID NO: 6)

His-Ser-Asp-Ala-Val-Phe-Thr-Asp-Asn-Tyr-Arg-Arg-Leu-Arg-Lys-  
Gln-Met-Ala-Val-Lys-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn  
(SEQ ID NO: 7)

His-Ser-Asp-Ala-Val-Phe-Thr-Asp-Asn-Tyr-Thr-Arg-Leu-Arg-  
Lys-Gln-Met-Arg-Val-Lys-Lys-Tyr-Leu-Asn-Ser-Ile-Leu-Asn  
(SEQ ID NO: 8) .